Defense Information Systems Agency

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Part II – Use of Architecture Products for Evaluating Info Exchange

JT4A

July 2010

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Agenda

- Background / Objectives
- Scope
- Source of the Requirement
- DoDAF Overview
- List of Products & Required Data Fields
- Example - How to use the Architecture Products
- Testing Guidelines
- Questions

Background / Objectives

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- **Background:**
  - **This is part II of a series of briefings that cover requirements/capabilities review and how to use architecture products to evaluate NR-KPP**
- **Objectives**
  - **To provide the AOs and their support contractors with a general overview of what architecture products/data fields are needed for IOP testing and show how the information exchanges support certain functions / operational activities**
  - **Standardize the methodology for testing E2E info exchange**
  - **Ensure maximum consistency within the command on evaluating the information exchange (aka. Solution Architecture) element of the NR-KPP**

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Scope

- **This training is provided using a notional example of architecture products and focuses primarily on the information exchange element of the NR-KPP**

- **Other elements will be covered during the subsequent briefings of this series**

Source of Requirements

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- JITC uses JS certified requirements in the form of CPD, ISP, TISP, ISP Annex, NR-KPP Package
- Other documents (i.e., ORD, C4ISP, I-KPP, CDD) are only allowed based on prior coordination with JS J6 & receipt of written approval
- See the list of required architecture products and data fields for interoperability purpose
- Other requirements are contained in the narratives of the certified requirement and not include in the architecture products themselves (give examples)

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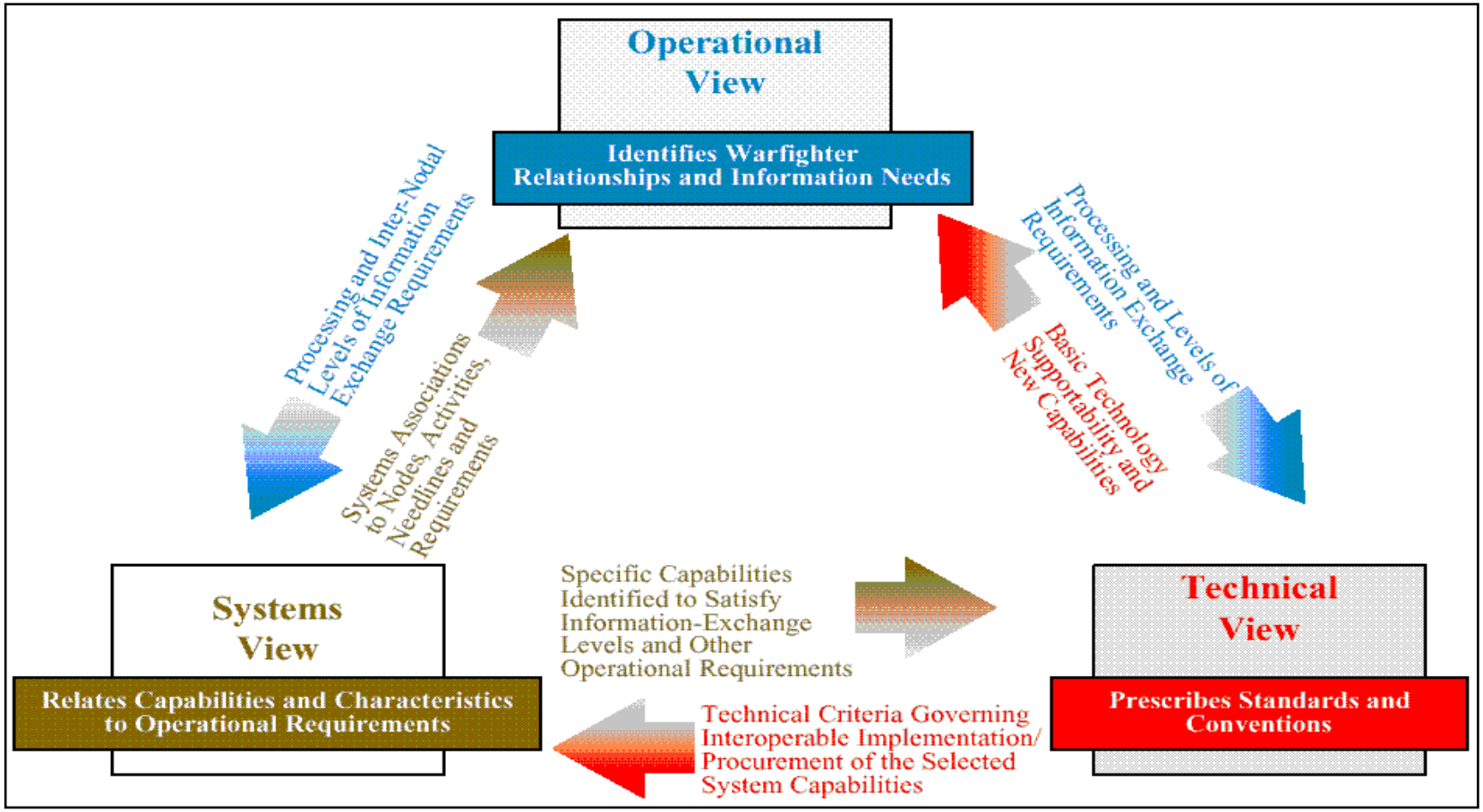
DoDAF Overview

Architecture 101


Operational View
Identifies Warfighter Relationships and Information Needs
Processing and Inter-Nodal Levels of Information Exchange Requirements
Systems Associations to Nodes, Activities, Needlines and Requirements
Processing and Levels of Information Exchange Requirements
Basic Technology Supportability and New Capabilities
Systems View
Relates Capabilities and Characteristics to Operational Requirements
Specific Capabilities Identified to Satisfy Information-Exchange Levels and Other Operational Requirements
Technical Criteria Governing Interoperable Implementation/ Procurement of the Selected System Capabilities
Technical View
Prescribes Standards and Conventions

UNCLASSIFIED

Department of Defense Architecture Framework (DODAF)

DOD Architecture Framework (DODAF)

All Views	AV-1	AV-2	AV-3								
Operational View	OV-1	OV-2	OV-3	OV-4	OV-5	OV-6	OV-7				
Systems View	SV-1	SV-2	SV-3	SV-4	SV-5	SV-6	SV-7	SV-8	SV-9	SV-10	SV-11
Technical View	TV-1	TV-2									

Architecture Views/Products

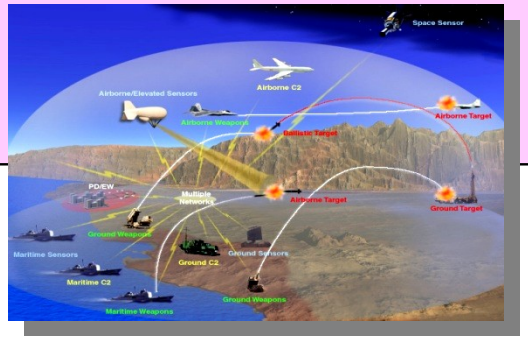
(DoDAF version 1.5)

All Views

AV-1, Overview & Summary Info
AV-2, Integrated Dictionary

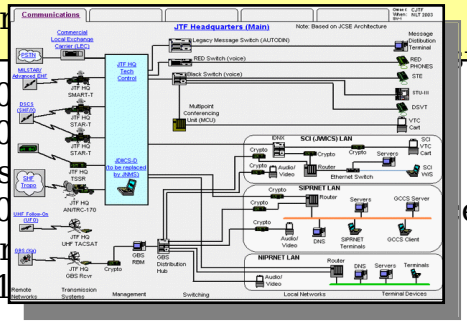
Operational Views

OV-1 High-level Operational Concept Graphic
OV-2 Operational Node Connectivity Descr
OV-3 Operational Information Exchange Matrix
OV-4 Organizational Relationships Chart
OV-5 Operational Activity Model
OV-6a Operational Rules Model
OV-6b Operational State Transition Descr
OV-6c Operational Event/Trace Descr
OV-7 Logical Data Model



Systems Views

SV-1 Systems & Svcs Interface Descr
SV-2 Systems & Svcs Communications Descr
SV-3 Systems/Svcs Matrices
SV-4 Systems & Svcs Functionality Descr
SV-5 Opnl Acty to Sys Func/Svcs Traceability Matrices
SV-6 System & Svcs Data Exchange Matrix
SV-7 System & Svcs Perf Parameters Matrix
SV-8 System & Svcs Evolution Descr
SV-9 t
SV-10
SV-10
Trans
SV-10 e
Descr
SV-11



Technical Views

TV-1, Technical Standards Profile
TV-2, Technical Standards Forecast

Service Area	IT Used	Service Standard

DoDAF 1.5 to DoDAF 2.0 Mapping

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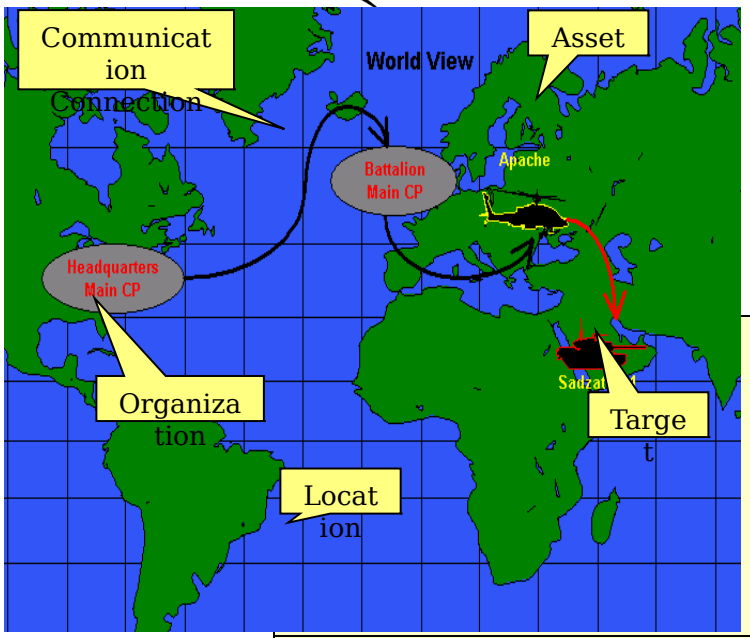
1_5-2_0_mapping.doc

OV-1 High Level Operational Graphic



Integrated architectures consists of operational, systems, and technical views

SV-3 System-

System Entity	Battalion Tactical S	Field Tactical Syst	HQ Tactical Syste
Battalion Tactical Systems		X	
Field Tactical Systems			
HQ Tactical Systems	X		

TV-1 Technical Architecture Profile

Service Area	Information Technology Used	Service Standard
Operating System Services	MS, MS Exchange Server	NT, POSIX, NFS, CIFS, NLM
User Interface Services	MS Office, MS Outlook, UNIX	POSIX User Interface Service WIN32, etc

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List of Required Architecture Products & Data Fields

Arch_Vu_Rqrmnts_v5a.doc

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Example Application

Notional Mission Planning Enroute Augmentation System (NMPEAS)
AV-1 (Overview and Summary Information)

AV-1_insert.doc

Notional Mission Planning Enroute Augmentation System (NMPEAS)
OV-1 (High-Level Operational Concept Graphic)

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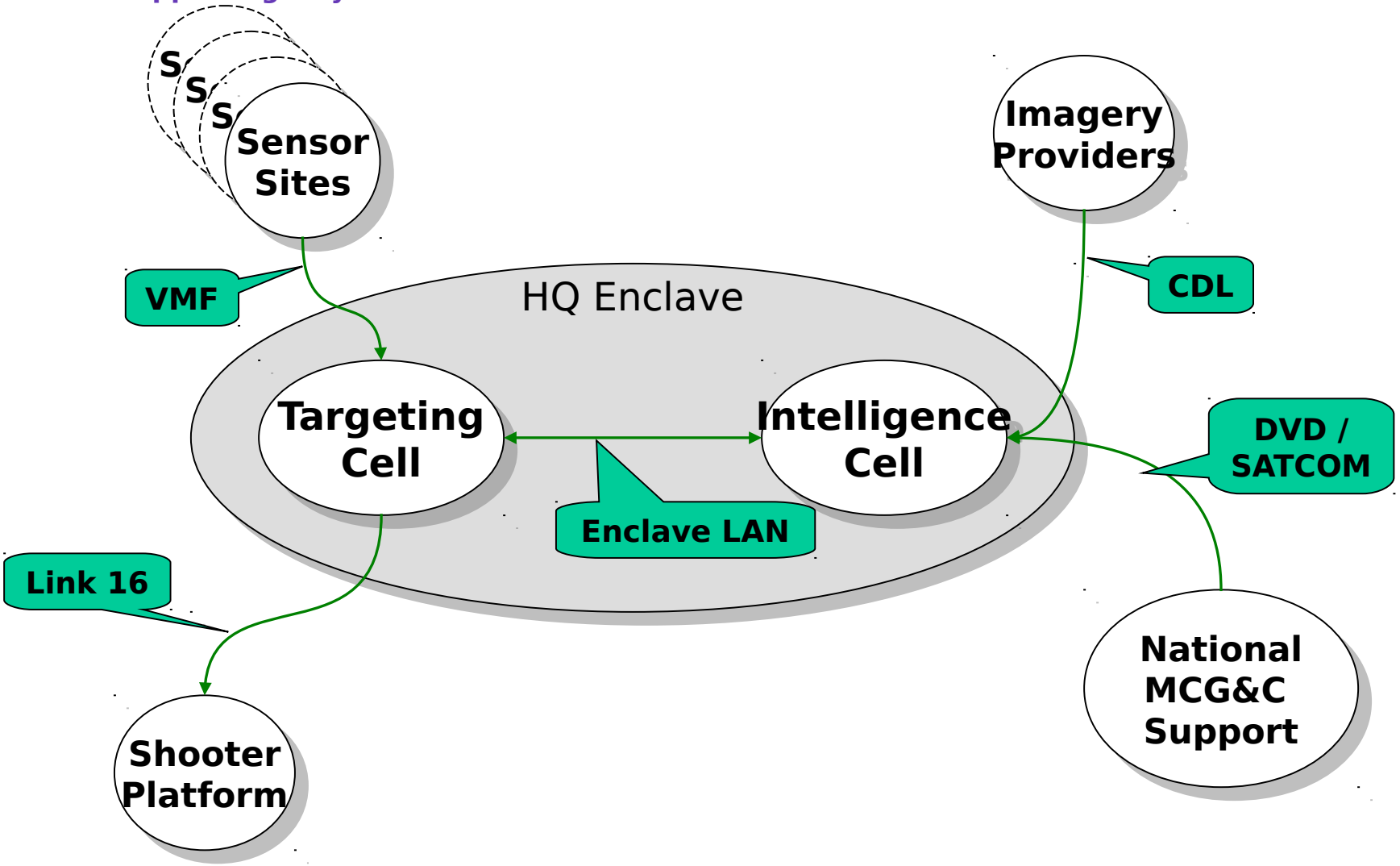

Notional Mission Planning Enroute Augmentation System (NMPEAS)
OV-2 (Operational Node Connectivity Diagram)

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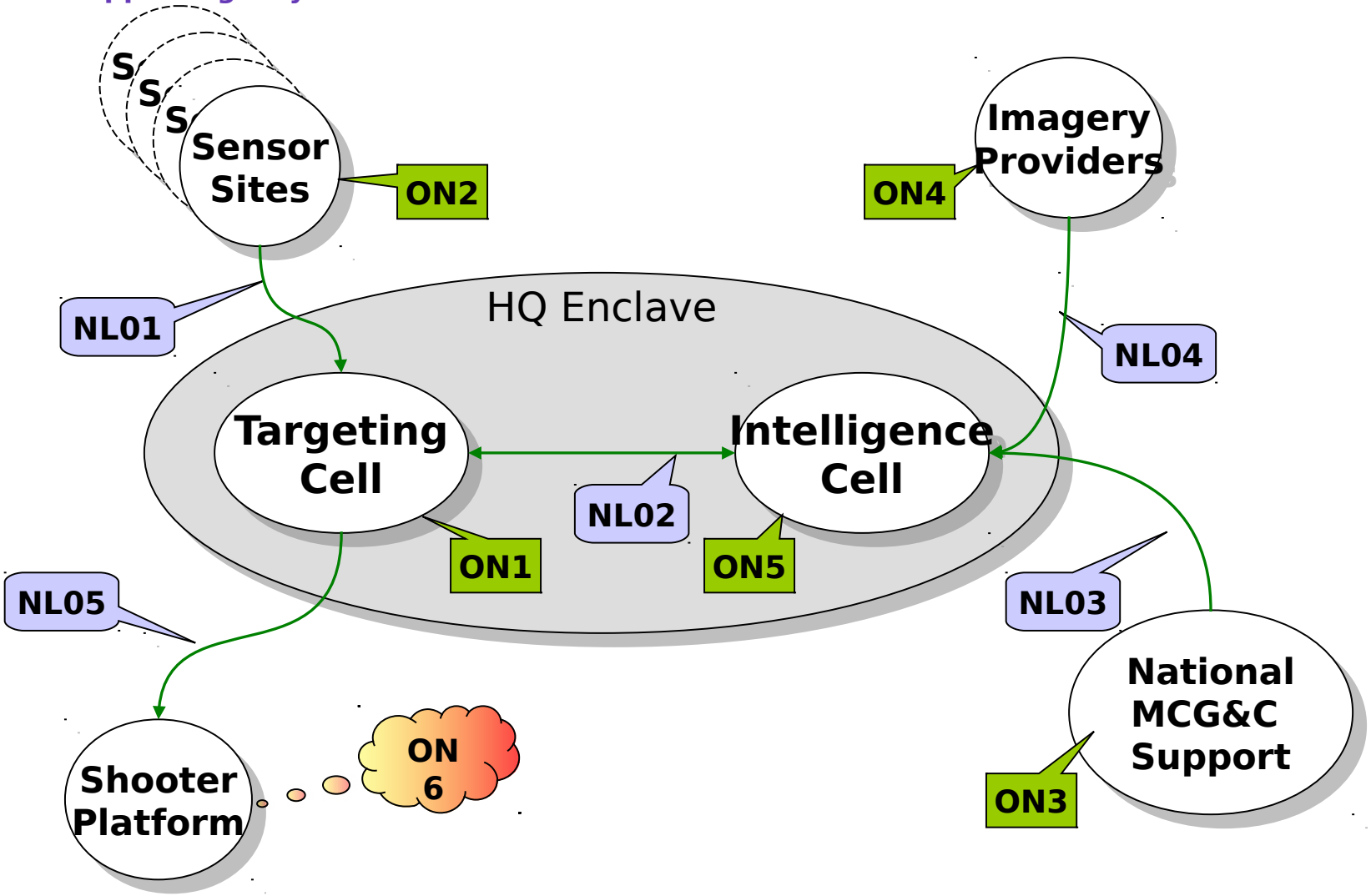

Notional Mission Planning Enroute Augmentation System (NMPEAS)
OV-3 (Operational Information Exchange Matrix)

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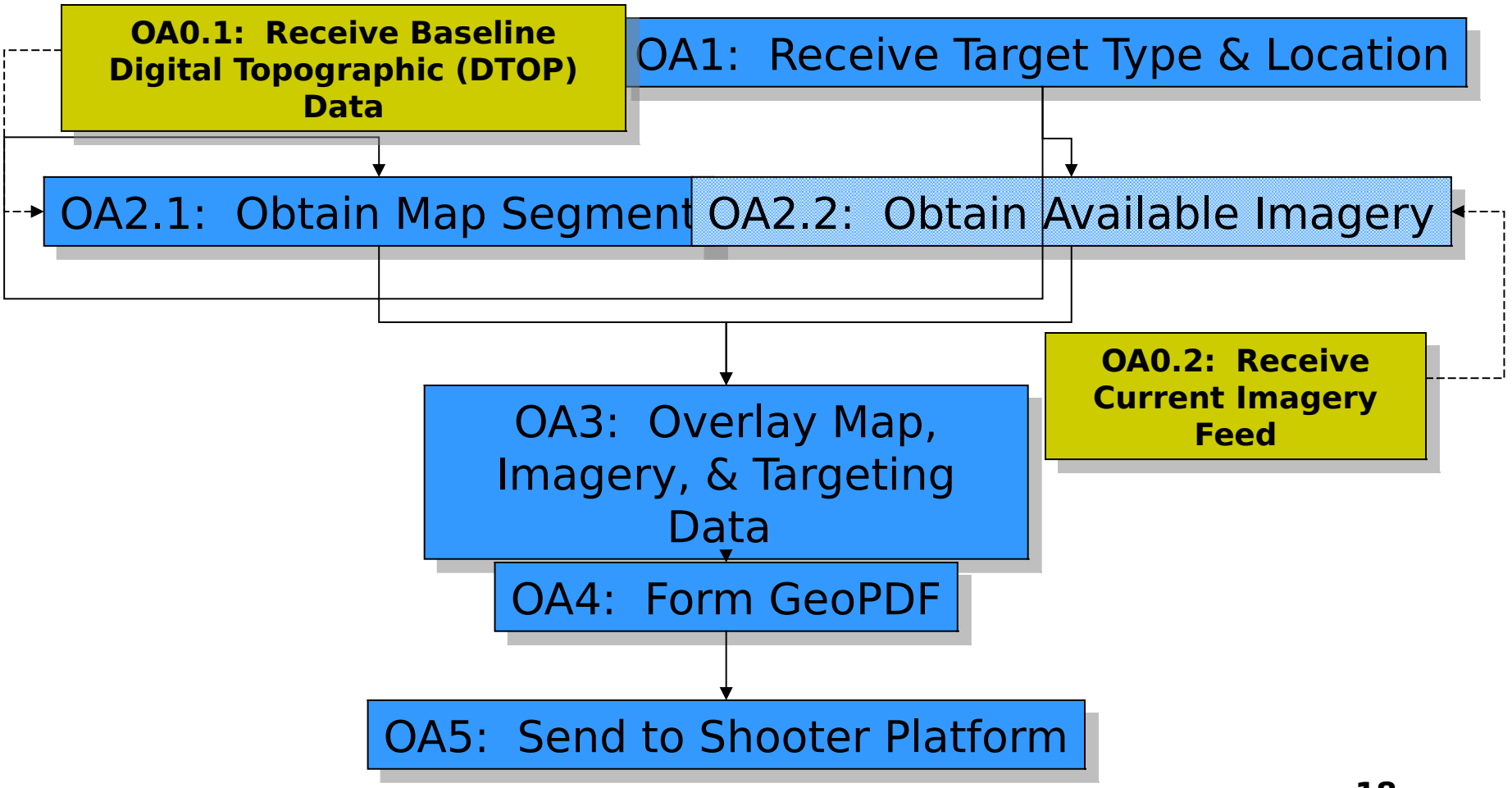
Notional Mission Planning Enroute Augmentation System (NMPEAS) OV-5 (Operational Activity Model))


OA0.1: Receive Baseline Digital Topographic (DTOP) Data
OA1: Receive Target Type & Location
OA2.1: Obtain Map Segment
OA2.2: Obtain Available Imagery
OA0.2: Receive Current Imagery Feed
OA3: Overlay Map, Imagery, & Targeting Data
OA4: Form GeoPDF
OA5: Send to Shooter Platform

Notional Mission Planning Enroute Augmentation System (NMPEAS)
OV-6C (Operational Event-Trace Description)

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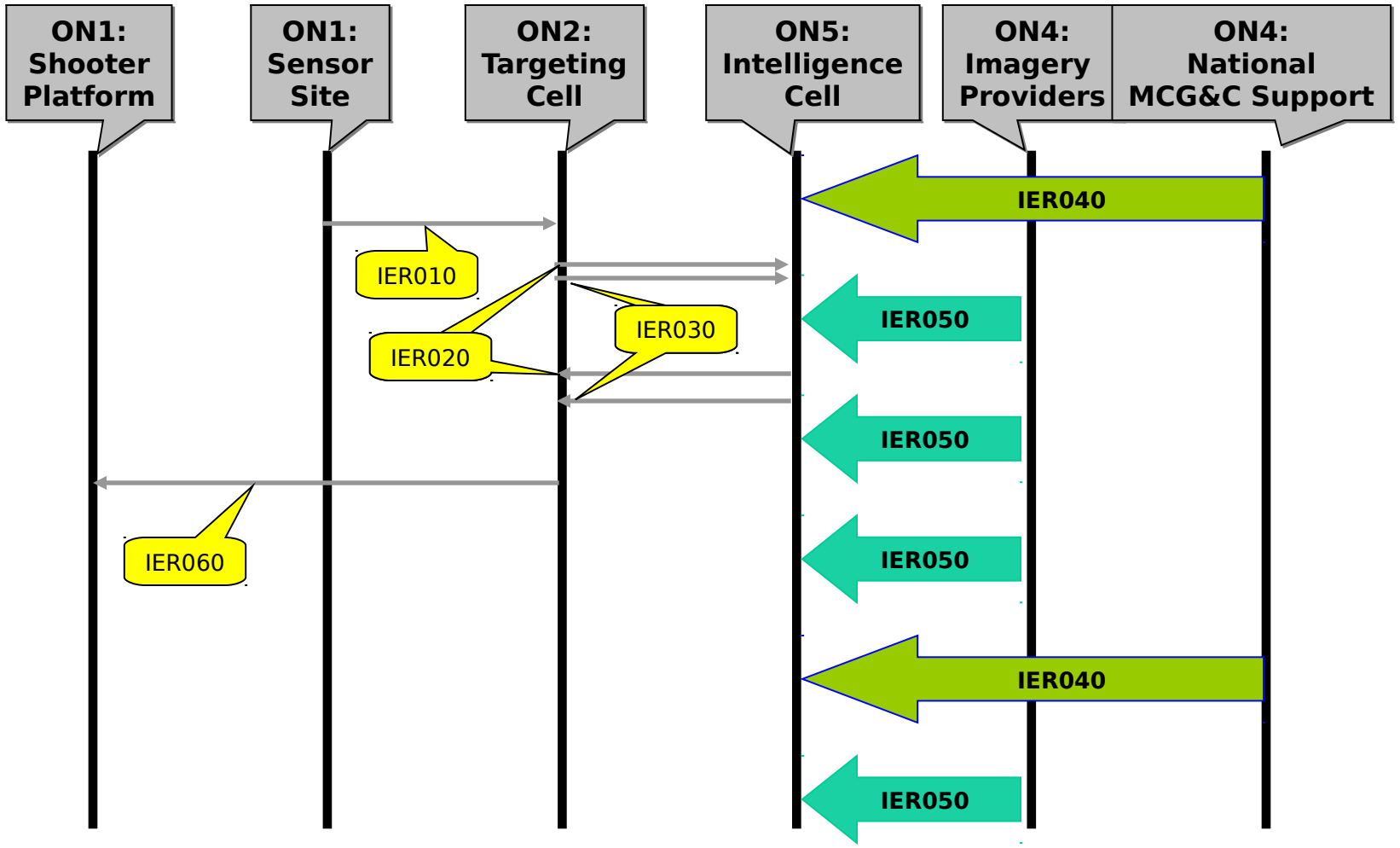

Notional Mission Planning Enroute Augmentation System (NMPEAS) SV-1 (Systems Interface Description)

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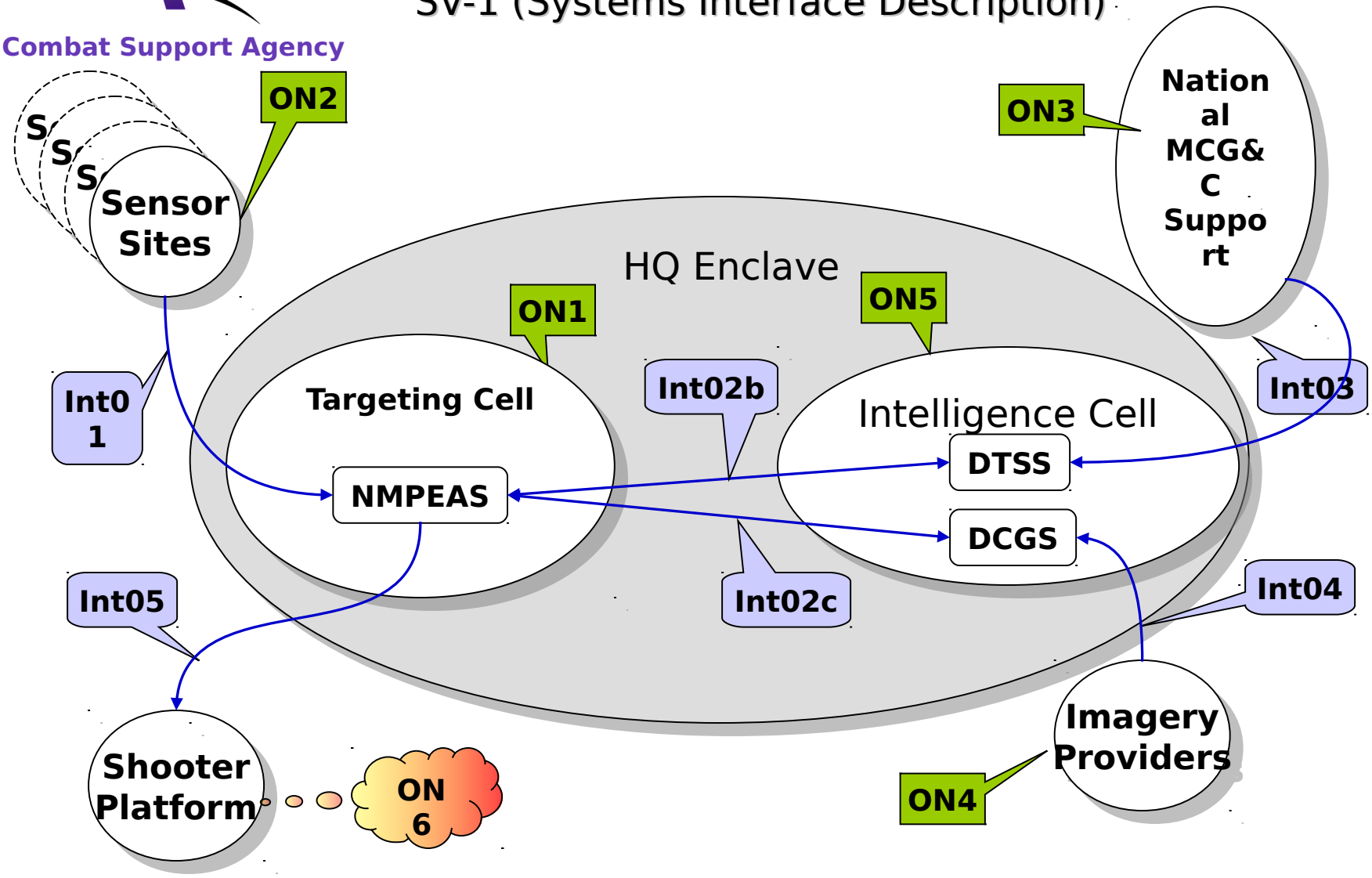

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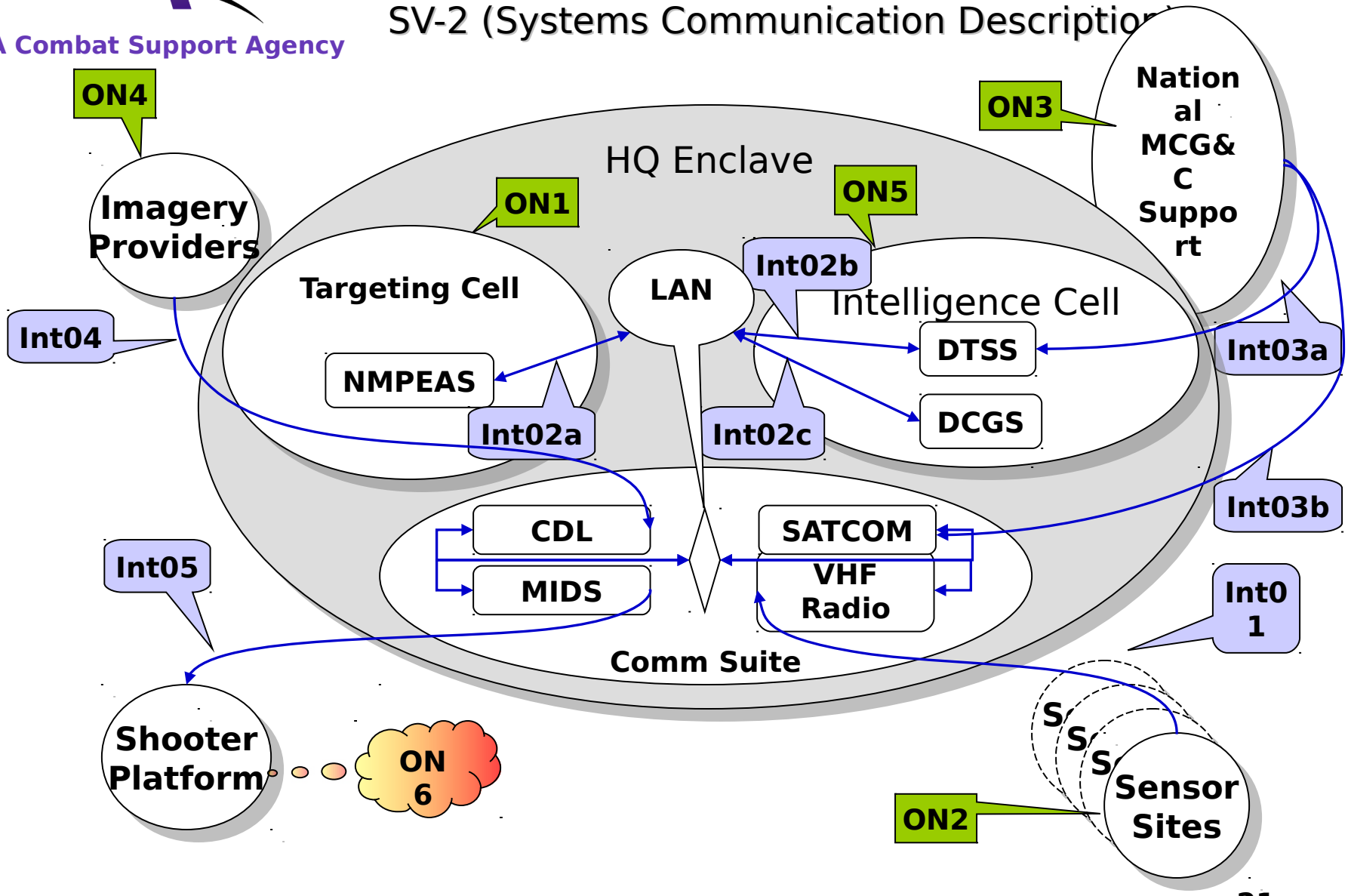
Notional Mission Planning Enroute Augmentation System (NMPEAS) SV-2 (Systems Communication Description)



Notional Mission Planning Enroute Augmentation System (NMPEAS)
SV-6 (Systems Data Exchange Matrix)

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Notional Mission Planning Enroute Augmentation System (NMPEAS)
TV-1 (Technical Standards Profile)

TV-1_insert.xls

TV-1_DISR.htm

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Testing Guidelines

- **AOs should:**
  - **Identify architecture element criticality across artifacts**
  - **Extract testable information and data exchange attributes and criteria**
  - **Compare SUT exchange attributes & criteria against those of interfacing systems**
  - **Bring gaps or mismatches to the attention of the PM, and to J6, when the PM is unable to resolve issues**
  - **If you don't understand an architecture artifact, or aren't sure about it – ask someone – any of the policy folks will be able to help, or point you to someone who can**
- **AOs should not:**
  - **Change or supplement architecture requirements themselves**

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Questions

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Test Question #1

Name three types of connection illustrated in the architecture artifacts:

- Unlabeled operational connections in the OV-1
- Operational need lines in the OV-2
- Information Exchange Requirements (IERs) in the OV-3
- Operational Activity links in the OV-5
- Operational Event Traces in the OV-6C
- System (or service) interfaces in the SV-1
- System communications interfaces in the SV-2
- System Data Exchanges (SDEs) in the SV

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Test Question #2

What is traceability among architecture artifacts?

The ability to consistently map elements (nodes, links, activities, exchanges, standards, etc.) between architecture artifacts.

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Test Question #3

Which of the architecture artifacts explicitly define information or data exchanges and their

The OV-3, Information Exchange Matrix

The SV-6, System Data Exchange Matrix

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Test Question #4

Which architecture artifact documents the chronological relationships among operational activities?

The OV-6C, Operational Event-Trace Description

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Test Question #5

Which architecture artifact describes the purpose and scope of the capability specified in the remaining artifacts?

The AV-1, Overview and Summary Information

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Test Question #6

Which artifacts will the tester need to consult to determine the criticality associated with specific standards?

The OV-3, Information Exchange Matrix, the SV-6, System Data Exchange Matrix, and the TV-1, Technical Standards Profile

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POCs

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